WHAT IS CLAIMED IS:

1. An admission control method for a wireless network (100) that includes a plurality of wireless stations (108-1 – 108-n) and a controller (104), comprising the steps of:

calculating, for a station of the plurality, a minimally sufficient buffer-emptying rate (S308) based upon a maximum buffer size (S304) which is equal to the product of a delay and an amount by which a peak transmission rate (208) of said station exceeds the calculated rate, said delay being inversely proportional to a difference between said peak transmission rate and a mean transmission rate (212) of said station; and

determining, based on the calculated rate, whether said station of the plurality is granted a right to communicate on a channel of the network (112, S412).

2. The method of claim 1, wherein the buffer size is bounded by the product of the calculated rate for said station and a maximum delay between arrival of a data frame at a medium access control (MAC) layer and a beginning of transmission of the frame on a physical (PHY) layer (S308).

3. The method of claim 1, wherein the calculated rate of said station is inversely proportional to one minus a determined probability of error for transmitting a frame on the channel (S312).

4. The method of claim 1, wherein said delay is based upon a maximum burst size (216) representative of a bucket depth of a second token bucket (224) of a dual token bucket policer (200) at the controller, the first bucket having zero depth, tokens arriving at the first and second buckets at respective rates allowing respective passage of the arriving traffic at said peak and mean transmission rates, respectively.

5. The method of claim 1, wherein said delay is based upon a magnitude of a drop of a bandwidth of the channel to a predetermined amount that would serve as a basis for revoking said right (S312).

6. The method of claim 5, wherein said delay is based upon a maximum burst size (216) representative of a bucket depth of a second token bucket (224) of a dual token bucket policer (200) at the controller (104), the first bucket having zero depth, tokens arriving at the first and second buckets at respective rates allowing respective passage of the arriving traffic at said peak and mean transmission rates, respectively.

7. The method of claim 1, wherein said right to communicate allows said station to transmit at least one frame during a transmission opportunity time interval, said calculating determining, for the purpose of adding size overhead to said at least one frame, how many of the frames fit within said interval (S316).

8. The method of claim 1, the determining step further comprises the steps of calculating respective minimally sufficient buffer-emptying rates of the plural stations, converting said respective minimally sufficient buffer-emptying rates to respective air times (S320), and summing the air times for comparison with an air time threshold of the channel (S324).

9. The method of claim 8, wherein the calculating step further comprises the step of receiving as parameters transmitted from said station, to execute the calculating and determining steps, only the mean transmission rate, the peak transmission rate, a maximum burst size, a maximum delay, a data frame size and a minimum transmission rate (S404).

10. A network having admission control, the network comprising:

a plurality of wireless stations (108-1 – 108-N);

a controller of the stations (104);

a communication channel (112) for wirelessly connecting the plural stations and the controller; and

a buffer (228) for receiving at least one of upstream traffic to the controller, downstream traffic from the controller (116-1 – 116-3) and station-to-station sidestream traffic (120), said controller being configured for calculating a minimally sufficient rate (S308) of emptying the buffer based upon a maximum size (S304) of the buffer which is equal to the product of a delay and an amount by which a peak transmission rate (208) exceeds the calculated rate, said delay being inversely proportional to a difference between said peak transmission rate and a mean transmission rate (212) to the buffer (228), said controller being

further configured for determining, based on the calculated rate, whether a station of the plurality is granted a right to communicate on said channel (112, S412).

11. The network of claim 10, wherein said maximum size is bounded by the product of the calculated rate and a maximum delay between arrival of a data frame at a medium access control (MAC) layer and a beginning of transmission of the frame on a physical (PHY) layer (S308).

12. The network of claim 10, wherein the calculated rate is inversely proportional to one minus a determined probability of error for transmitting a frame on the channel (S312).

13. The network of claim 10, wherein said delay is based upon a maximum burst size (216) representative of a bucket depth of a second token bucket (224) of a dual token bucket policer (200) at the controller, the first bucket having zero depth, tokens arriving at the first and second buckets at respective rates allowing respective passage of the arriving traffic at said peak and mean transmission rates, respectively.

14. The network of claim 10, wherein said delay is based upon a magnitude of a drop of a bandwidth of the channel to a predetermined amount that would serve as a basis for revoking said right (S312).

15. The network of claim 14, wherein said delay is based upon a maximum burst size (216) representative of a bucket depth of a second token bucket (224) of a dual token bucket policer (200) at the controller, the first bucket having zero depth, tokens arriving at the first and second buckets at respective rates allowing respective passage of the arriving traffic at said peak and mean transmission rates, respectively.

16. The network of claim 10, wherein said right to communicate allows said station to transmit at least one frame during a transmission opportunity time interval, said calculating determining, for the purpose of adding size overhead to said at least one frame, how many of the frames fit within said interval (S316).

17. The network of claim 10, wherein the determini ng involves calculating respective minimally sufficient buffer-emptying rates of the plural stations, converting said respective minimally sufficient buffer-emptying rates to respective air times (S320), and summing the air times for comparison with an air time threshold of the channel (S324).

18. The network of claim 17, wherein the calculating entails receiving as parameters transmitted from said station, to execute the said calculating and determining, only the mean transmission rate, the peak transmiss ion rate, a maximum burst size, a maximum delay, a data frame size and a minimum transmission rate (S404).

19. An admission control program, embodied in a computer-readable medium, for a wireless network (100) that includes a plurality of wireless statio ns (108-1 – 108-N) and a controller (104), said program comprising instructions for:

calculating, for a station of the plurality, a minimally sufficient buffer-emptying rate (S308) based upon a maximum buffer size (S304) which is equal to the product of a delay and an amount by which a peak transmission rate (208) of said station exceeds the calculated rate, said delay being inversely proportional to a difference between said peak transmission rate and a mean transmission rate (212) of said station; and

determining, based on the calculated rate, whether said station of the plurality is granted a right to communicate on a channel of the network (S412).

20. The program of claim 1, wherein said delay is based upon a magnitude of a drop of a bandwidth of the channel to a predetermined amount that would serve as a basis for revoking said right (S312).

21. A controller for a network having admission control, the network comprising a plurality of wireless stations, the controller, a communication channel for wirelessly connecting the plural stations and the controller, and a buffer for receiving at least one of upstream traffic to the controller, downstream traffic from the controller and station-to-station sidestream traffic, said controller being configured for calculating a minimally sufficient rate of emptying the buffer based upon a maximum size of the buffer which is equal to the product of a delay and an amount by which a peak transmission rate exceeds the calculated rate, said delay being inversely proportional to a difference between said peak transmission rate and a mean transmission rate to the buffer, said controller being further configured for determining, based on the calculated rate, whether a station of the plurality is granted a right to communicate on said channel.